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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: **L. B. Mummert, et al**

Express Mail: ER 748785885 US

Date: October 3, 2005

Serial No.: **09/692,596**

Filed: **October 19, 2000**

Docket No.: **YOR920000461-US1**

COMMISSIONER FOR PATENTS  
Alexandria, VA 22313-1450

Sir:

Transmitted herewith is an **Appeal Brief** in the above-identified Application.

The Commissioner is hereby authorized to charge payment of the following fees associated with this communication or credit any overpayment to **Deposit Account No. 50-0510**. A **duplicate copy** of this sheet is enclosed.

- X \$500.00 for filing a brief in support of an appeal in accordance with 37 CFR 41.20(b)(2).
- X Any additional filing fees required under 37 CFR \$1.16.
- X Any patent application processing fee under 37 CFR \$1.17.

Respectfully submitted,  
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I HEREBY CERTIFY THAT THIS CORRESPONDENCE IS  
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ON DATE OF DEPOSIT: October 3, 2005  
PERSON MAKING DEPOSIT: ANNE VACHON DOUGHERTY

Anne Vachon Dougherty 10/3/05  
Signature & Date

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

<u>In Re Application of</u>	:	October 3, 2005
<u>L. B. MUMMERT, et al</u>		Group Art No.: 2157
<u>Serial No.: 09/692,596</u>		Examiner: Gregory Todd
<u>Filed: October 19, 2000</u>		Anne Vachon Dougherty
<u>Title: SYSTEM AND METHOD TO</u>		3173 Cedar Road
<u>IMPROVE SERVICE IN</u>		Yorktown Hts, NY
<u>A GROUP OF SERVERS</u>		10598

Board of Patent Appeals and Interferences  
Washington, D.C. 20231

**APPEAL BRIEF (37 CFR 1.192)**

Appellants hereby appeal to the Board of Patent Appeals and Interferences from the decision dated May 3, 2005 of the Primary Examiner finally rejecting Claims 1-20 in the above-identified patent application, and respectfully request that the Board of Patent Appeals and Interferences

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consider the arguments presented herein and reverse the Examiner's rejection.

#### I. REAL PARTY IN INTEREST

The appeal is made on behalf of Applicants who are real parties in interest with respect to the subject patent application.

#### II. RELATED APPEALS AND INTERFERENCES

There are no pending related appeals or interferences with respect to the subject patent application.

#### III. STATUS OF CLAIMS

There are twenty (20) claims pending in the subject patent application, numbered 1-20. No claims stand allowed. All of Claims 1-20 stand rejected.

A complete copy of the claims involved in the appeal is attached in Appendix A hereto.

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#### IV. STATUS OF AMENDMENTS

The status of the prosecution of the application is as follows:

October 19, 2000	-	Application filed
November 5, 2004	-	Office Action
February 7, 2005	-	Amendment filed
May 3, 2005	-	Final Office Action
July 5, 2005	-	Amendment After Final with Request for Reconsideration
July 18, 2005	-	Advisory Action refusing entry of the Amendment After Final
August 1, 2005	-	Notice of Appeal filed

#### V. SUMMARY OF INVENTION

The present invention is directed to an apparatus, program storage device, and a method for evaluating workload across a processing environment having a plurality of computer systems each having a plurality of assigned workload units. The claimed method comprises the steps of assigning a plurality of impact values, one impact value for

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each workload unit assigned for each of the plurality of computing systems (see: Fig. 8, steps 804-805 and accompanying description on page 19 of the Specification), wherein the assigning of each impact value comprises determining a change in system expiration date should the workload unit be removed from the system; and assessing the workload based on the impact values.

An impact value is assigned for each workload unit, wherein a workload unit is expressly defined for the application as "a subset of the workload", the workload being "the set of identifiable tasks that execute in the processing system" (see: page 8, line 19-page 9, line 3). For each subset of the workload, an impact value is assigned, representing the change in system expiration date that would occur if the workload unit was removed from the system. The term "expiration date" is the date when the server workload is expected to exceed its capacity because of growth in workload. The expiration date may be calculated using life expectancy, capacity space, or other method, as detailed in the Specification on page 11, lines 1-18.

VI. STATEMENT OF ISSUE ON APPEAL

There following issue is on appeal:

(1) whether the Examiner erred in refusing to enter the **Amendments to the Claims** submitted in the Amendment After Final dated July 5, 2005, which amendments were submitted to place the claims in better condition for appeal; and

(2) whether the Examiner erred in rejecting Claims 1-20 as anticipated by the Borowsky patent.

VII. ARGUMENT

ARGUMENT (1)

Appellants respectfully assert that the Examiner erred in refusing to enter the **Amendments to the Claims** which were submitted in the Amendment After Final dated July 5, 2005. Appellants expressly stated, on pages 1 and 8 of the

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Amendment After Final, that the **Amendments to the Claims** were made "to present rejected claims in better form for consideration on appeal". Appellants aver that the amendments, specifically to independent Claims 1, 10 and 12, were made to improve the readability of the claims. Appellants assert that the amendments did not change the scope of the claims, and that the amendments would not necessitate a new search.

Appellants believe that the Examiner erred in refusing to enter the amendments. Appellants respectfully request that the Board of Patent Appeals and Interferences overrule the Examiner's refusal to enter the amendments and that the amendments, as set forth in Appendix B of this Appeal Brief, be entered.

ARGUMENT (2)

With regard to issue (2), Appellants respectfully contend that the Examiner has erred in rejecting Claims 1-20 as anticipated by the teachings of the Borowsky patent.

The present application claims an apparatus, program storage device, and a method for evaluating workload across a processing environment having a plurality of computer

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systems each having a plurality of assigned workload units, wherein the method comprises the steps of assigning a plurality of impact values, one impact value for each workload unit assigned for each of the plurality of computing systems, wherein the assigning of each impact value comprises determining a change in system expiration date should the workload unit be removed from the system; and assessing the workload based on the impact values.

As discussed above, an impact value is assigned for each workload unit, wherein a workload unit is expressly defined for the application as "a subset of the workload", the workload being "the set of identifiable tasks that execute in the processing system" (see: page 8, line 19-page 9, line 3). For each subset of the workload, an impact value is assigned, representing the change in system expiration date that would occur if the workload unit was removed from the system. The term "expiration date" is the date when the server workload is expected to exceed its capacity because of growth in workload. The expiration date may be calculated using life expectancy, capacity space, or other method, as detailed in the Specification on page 11, lines 1-18.



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Appellants respectfully point out that while the manner of calculating the expiration date for the system may be flexible, Appellants are not claiming a manner of calculating expiration date for a system. Appellants are claiming a system and method and program storage device for evaluating workload across a processing environment, and it is the assigning of an impact value as the determined change in expiration date for each workload unit that is a claim feature.

The 102 reference, the Borowsky patent, is directed to a method and apparatus for implementing Quality of Service (QoS) guarantees in designing data storage systems. Borowsky estimates workload for a data storage system in terms of time and then determines whether the estimate would fall within the Quality of Service guarantees desired for that data storage system. Borowsky provides  $W(T)$  to represent the "work generated by the combined workload 86" (Col. 7, lines 25-26) and teaches that " $W(T)$  is a random variable with a probability distribution" (Col. 7, lines 30-31). As expressly taught by Borowsky in Col. 7, lines 40-43, "[t]he units of the workload distribution  $W(T)$  is in

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terms of time, wherein it is determined the total length of time for the host 84 to complete the work."

Once Borowsky has estimated the total time, it then compares the length of time for the p-quantile of the workload distribution to a preset value, "bound T" which is based on the QoS guarantee. If the length of time of the p-quantile of the workload distribution  $W_p(T)$  is less than the bound T, then the condition is met" (Col. 7, lines 43-45). If the time estimate exceeds bound T, then the host would not meet the QoS guarantee for the workload.

Appellants respectfully assert that the Borowsky patent does not teach or suggest the invention as claimed. With specific reference to the claim language, Borowsky does not teach a step for assigning a plurality of impact values, one impact value for each workload unit assigned for each of the plurality of computing systems, wherein the assigning of each impact value comprises determining a change in system expiration date should that workload unit be removed from the system. Borowsky does not look at separate workload units as they relate to the total time estimate. Borowsky simply determines or estimates the total length of time for a host to complete work.

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Borowsky does not assign an impact value for each workload unit related to the expiration date when a server workload would be expected to exceed capacity. What Borowsky does is provide a "random variable with a probability distribution" which is loosely based on workload specifications 26. The workload specifications are defined at Col. 4, lines 21-42 as data on the past performance or estimated performance of systems under "typical loads."

Borowsky does not determine an impact unit for each actual workload unit; but, rather, estimates a probability distribution for a combined workload. In fact, Borowsky expressly teaches that "[i]n most instances, the p-quantile of the workload distribution  $W(T)$  cannot be computed directly" and is, instead, estimated for the workload (Col. 7, lines 57-Col. 8, lines 8).

Appellants conclude, therefore, that the Borowsky patent does not anticipate the claim step of assigning a plurality of impact values, one for each workload unit.

Appellants further assert that the Borowsky patent does not teach or suggest the second step or means for assessing the workload based on the impact values. Borowsky does not assess workload based on its own workload distribution

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value, let alone on impact values related to a change in system expiration date. Borowsky simply estimates a total length of time and compares it to a threshold (bound T). If the total length of time exceeds "bound T", then a new estimate is done for a different workload.

While Borowsky uses the term "reassesses", the "reassessment" of workload, it is neither based on its calculated workload distribution estimate nor on impact values. Rather, Borowsky simply selects a different workload and performs a new estimate of the total length of time for that workload. Again, the estimate is for the combined workload and not individual workload units.

It is well established under U. S. Patent Law that, for a reference to anticipate claim language under 35 USC 102, that reference must teach each and every claim feature. Since the Borowsky patent does not teach steps or means for assigning a plurality of impact values, one impact value for each workload unit assigned for each of the plurality of computing systems, wherein the assigning of each impact value comprises determining a change in system expiration date should the workload unit be removed from the system; and assessing the workload based on the impact values, it

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cannot be maintained that Borowsky anticipates the invention as set forth in the independent claims, Claims 1, 10, and 12. Appellants further point out that, a reference which does not anticipate the language of the independent claims cannot be said to anticipate the claims which depend therefrom and add further limitations thereto. Accordingly, Appellants conclude that all of the pending claims are patentable over the Borowsky patent.

In the **Response to Arguments** section of the Final Office Action, the Examiner stated that "Borowsky teaches plural workloads". Appellants agree that Borowsky teaches that the combined workload is made up of independent workloads (see: e.g., the paragraph found in Col. 8 from lines 26-42); however, the cited teachings clearly show that Borowsky estimates the p-quantile distribution and time for the overall work and not for individual workload units.

The Examiner further stated that Borowsky utilizes the workload library information for typical workloads. Appellants note, as discussed above, that the Borowsky workload specifications are not impact values for individual workload units; but comprise, as defined at Col. 4, lines 21-42, data on the past or estimated performance of systems

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under "typical loads." Again, Borowsky is dealing with performance for overall combined workloads, and not workload units. Moreover, Borowsky is using data gathered or estimated from past performance of "typical" overall workloads and not for actual workloads or workload units which are to be performed.

Finally, the Examiner concluded that "Borowsky teaches an 'expiration date' of a system and workload" based on the teachings found in Col. 6 from line 6-line 52. In the cited teachings, Borowsky describes the "virtual store" which maintains client-selected attributes for which level of QoS is required by the client. Clearly the client's quality of service attributes do not anticipate the system's expiration date, let alone the impact value which is the change in system expiration date for a workload unit that is a subset of the overall workload. Borowsky teaches that "one of the quality-of-service attributes associated with capacity planning for the target system 80 is in the form of 'P% of all requests must achieve a response time of less than T seconds'" (see: Col. 6, lines 40-43). Appellants respectfully argue that Borowsky's mention of "capacity planning" does not teach or suggest evaluating workload by

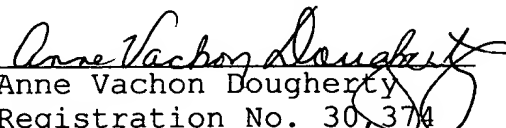
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assigning an impact value for a subset workload unit, as taught and claimed by the present application.

CONCLUSION

Appellants respectfully assert that the Examiner has erred in refusing to enter the **Amendments to the Claims** has erred in rejecting all of the pending claims under 35 USC 102(e) as anticipated by the Borowsky patent. Appellants request that the decisions of the Examiner be overturned by the Board and that the claims, including the amendment set forth in Appendix B, be passed to issuance.

Respectfully submitted,  
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**APPENDIX A**

1. A method for evaluating workload across a processing environment having a plurality of computer systems each having a plurality of assigned workload units comprising the steps of:

assigning a plurality of impact values, one to each workload unit assigned for each of the plurality of computing systems, said assigning comprising determining a change in system expiration date should each one of said plurality of workload units be removed from the system; and  
assessing the workload based on said impact values.

2. The method of Claim 1 wherein the change in system expiration date is determined based on system life expectancy.

3. The method of Claim 1 wherein the change in system expiration date is determined based on capacity space.



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4. The method of Claim 1 further comprising sorting said workload units based on said impact values into a sorted impact list.

5. The method of Claim 1 further comprising altering the workload in the processing environment to change the expiration dates of at least two of said plurality of computer systems.

6. The method of Claim 1 further comprising comparing the expiration date of each of said plurality of computing systems to at least one target planning date for servicing each of said plurality of computing systems.

7. The method of Claim 6 further comprising altering the workload in the processing environment to change the expiration date relative to the target planning date for at least two of said plurality of computer systems.

8. The method of Claim 6 further comprising the steps of:  
creating a From list of computer systems for which the expiration date precedes the at least one planning date;

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creating a To list of computer systems for which the expiration date is later than said at least one planning date; and

reassigning workload units from computer systems on said From list to computer systems on said To list based on said impact values.

9. The method of Claim 8 further comprising calculating new expiration dates for computer systems on said From and said To lists after said reassigning.

10. Apparatus for evaluating workload across a processing environment having a plurality of computer systems each having a plurality of assigned workload units comprising:

an administrative processor comprising:

an impact value component for assigning a plurality of impact values, one ~~to~~ each workload unit assigned to each of the plurality of computing systems, by determining a change in system expiration date should each one of said plurality of workload units be removed from the system; and

a processing component for assessing the workload based on said impact values.

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11. The apparatus of Claim 10 further comprising at least one storage location accessible by the administrative processor for storing data relating to said plurality of computer systems.

12. A program storage device readable by machine tangibly embodying a program of instructions executable by the machine to perform method steps for evaluating workload across a processing environment having a plurality of computer systems each having a plurality of assigned workload units, said method comprising the steps of:

    assigning a plurality of impact values, one to each workload unit assigned for each of the plurality of computing systems, by determining a change in system expiration date if each one of said plurality of workload units is removed from the system; and

    assessing the workload based on said impact values.

13. The device of Claim 12 wherein the method further comprises sorting said workload units based on said impact values into a sorted impact list.

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14. The device of Claim 12 wherein the method further comprises altering the workload in the processing environment to change the expiration dates of at least two of said plurality of computer systems.

15. The device of Claim 12 wherein the method further comprises comparing the expiration date of each of said plurality of computing systems to at least one target planning date for servicing each of said plurality of computing systems.

16. The device of Claim 15 wherein the method further comprises altering the workload in the processing environment to change the expiration date relative to the target planning date for at least two of said plurality of computer systems.

17. The device of Claim 16 wherein the method further comprises the steps of:

creating a From list of computer systems for which the expiration date precedes the at least one planning date;

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creating a To list of computer systems for which the expiration date is later than said at least one planning date; and

reassigning workload units from computer systems on said From list to computer systems on said To list based on said impact values.

18. The device of Claim 17 wherein the method further comprises calculating new expiration dates for computer systems on said From and said To lists after said reassigning.

19. The device of Claim 12 wherein the change in system expiration date is determined based on system life expectancy.

20. The device of Claim 12 wherein the change in system expiration date is determined based on capacity space.

APPENDIX B

LISTING OF CLAIMS INCLUDING **AMENDMENTS TO THE CLAIMS** FROM  
THE AMENDMENT AFTER FINAL SUBMITTED JULY 5, 2005

1. (currently amended) A method for evaluating workload across a processing environment having a plurality of computer systems each having a plurality of assigned workload units comprising the steps of:

assigning a plurality of impact values, one impact value for ~~to~~ each workload unit assigned for each of the plurality of computing systems, wherein said assigning of each impact value comprises ~~comprising~~ determining a change in system expiration date should ~~each one of said plurality of the workload unit units~~ be removed from the system; and

assessing the workload based on said impact values.

2. (original) The method of Claim 1 wherein the change in system expiration date is determined based on system life expectancy.

3. (original) The method of Claim 1 wherein the change in system expiration date is determined based on capacity space.

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4. (original) The method of Claim 1 further comprising sorting said workload units based on said impact values into a sorted impact list.

5. (original) The method of Claim 1 further comprising altering the workload in the processing environment to change the expiration dates of at least two of said plurality of computer systems.

6. (original) The method of Claim 1 further comprising comparing the expiration date of each of said plurality of computing systems to at least one target planning date for servicing each of said plurality of computing systems.

7. (original) The method of Claim 6 further comprising altering the workload in the processing environment to change the expiration date relative to the target planning date for at least two of said plurality of computer systems.

8. (original) The method of Claim 6 further comprising the steps of:

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creating a From list of computer systems for which the expiration date precedes the at least one planning date;

creating a To list of computer systems for which the expiration date is later than said at least one planning date; and

reassigning workload units from computer systems on said From list to computer systems on said To list based on said impact values.

9. (original) The method of Claim 8 further comprising calculating new expiration dates for computer systems on said From and said To lists after said reassigning.

10. (currently amended) Apparatus for evaluating workload across a processing environment having a plurality of computer systems each having a plurality of assigned workload units comprising:

an administrative processor comprising:

an impact value component for assigning a plurality of impact values, one impact value for ~~to~~ each workload unit assigned to each of the plurality of computing systems, wherein said assigning of each impact value comprises by



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determining a change in system expiration date should ~~each~~  
~~one of said plurality of~~ the workload unit ~~units~~ be removed  
from the system; and

a processing component for assessing the workload based  
on said impact values.

11. (original) The apparatus of Claim 10 further comprising  
at least one storage location accessible by the  
administrative processor for storing data relating to said  
plurality of computer systems.

12. (currently amended) A program storage device readable  
by machine tangibly embodying a program of instructions  
executable by the machine to perform method steps for  
evaluating workload across a processing environment having a  
plurality of computer systems each having a plurality of  
assigned workload units, said method comprising the steps  
of:

assigning a plurality of impact values, one impact  
value for ~~to~~ each workload unit assigned for each of the  
plurality of computing systems, wherein said assigning of  
each impact value comprises ~~by~~ determining a change in

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system expiration date if ~~each one of said plurality of~~ the  
workload unit ~~units~~ is removed from the system; and

assessing the workload based on said impact values.

13. (original) The device of Claim 12 wherein the method further comprises sorting said workload units based on said impact values into a sorted impact list.

14. (original) The device of Claim 12 wherein the method further comprises altering the workload in the processing environment to change the expiration dates of at least two of said plurality of computer systems.

15. (original) The device of Claim 12 wherein the method further comprises comparing the expiration date of each of said plurality of computing systems to at least one target planning date for servicing each of said plurality of computing systems.

16. (original) The device of Claim 15 wherein the method further comprises altering the workload in the processing environment to change the expiration date relative to the

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target planning date for at least two of said plurality of computer systems.

17. (original) The device of Claim 16 wherein the method further comprises the steps of:

creating a From list of computer systems for which the expiration date precedes the at least one planning date;

creating a To list of computer systems for which the expiration date is later than said at least one planning date; and

reassigning workload units from computer systems on said From list to computer systems on said To list based on said impact values.

18. (original) The device of Claim 17 wherein the method further comprises calculating new expiration dates for computer systems on said From and said To lists after said reassigning.

19. (original) The device of Claim 12 wherein the change in system expiration date is determined based on system life expectancy.

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20. (original) The device of Claim 12 wherein the change in system expiration date is determined based on capacity space.